

**BAA 04-31**  
**Proposer Information Pamphlet (PIP)**  
for  
**Defense Advanced Research Projects Agency**  
**(DARPA)**  
**Office of the Director (DIRO)**  
**Force Multipliers for Urban Area Operations**

## BAA04-31, Force Multipliers for Urban Area Operations

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## 1. INTRODUCTION

The Defense Advanced Research Projects Agency (DARPA) is soliciting proposals under this BAA for the performance of research, development, design, and testing that directly supports advancement of Urban Operation Technologies providing revolutionary improvements to warfighting in the urban environment. The goal is to support DARPA's Strategic Thrust for Force Multipliers for Urban Area Operations by providing technical and operational options enabling the planning and execution of urban operations to be as responsive, flexible, and successful as other aspects of U.S. warfighting.

Today's Concept of Operations (CONOPS) for urban combat is primarily a force-on-force land operation re-supplied by other ground forces and supported by air assets delivering air strikes and other related support missions. DARPA is interested in new "urbanized" technologies and operating concepts that would give U. S. Combat forces the ability to deny opposing forces the opportunity to operate and hide in urban environments. DARPA seeks innovative technical approaches and operational perspective, approaches that exploit novel technologies and new operational concepts.

DARPA's plan is to support multiple, multi-phase efforts that pursue the design, development, integration, and demonstration of critical and enabling technologies and systems attributes pertaining to operational Force Multipliers for Urban Area Operations (FMUOps). Proposed efforts will consist of at least two phases. The first is a study phase, of six to twelve months duration, aimed at establishing the technical feasibility of the proposed concept. The following phases will comprise development of those ideas proved worthy of pursuing during the study phase.

### 1.1 TECHNICAL TOPIC AREAS

Any technical areas that fall within the scope of the topics listed in the outlined in the Introduction are acceptable. The following areas are of specific interest. Concepts for:

**1.1-1. System Architecture and Integration:** This area seeks novel integrated CONOPS specifically tailored for the urban environment to reduce casualties while increasing the speed of operations. The goal is to create system level approaches by providing technical and operational options enabling the planning and execution of urban operations to be as responsive, flexible, and successful as other aspects of U.S. warfighting. Solutions may apply to operations both before and after the cessation of large-scale hostilities. Of particular interest are solutions that address the very different challenges presented by warfare in the urban environment and dramatically enhance war fighter capabilities. Proposers should explain what tools are used to plan and provide intelligence as well as discuss the size of the force and its make up, including: personnel, weapons, logistics support, combat equipment, etc.

**1.1-2. Persistent Staring Reconnaissance, Surveillance, & Target Acquisition (RSTA) Systems:** This area seeks advances in intelligence gathering for city-wide targets, particularly approaches that reflect the three dimensional nature of this environment. Systems of interest include: capabilities to detect and characterize personnel and equipment in severe urban clutter

and through external and internal building walls; flying / perching machines able to carry and operate communications and sensor payloads; survivable urban-canyon flying vehicles; systems that discriminate combatants from non-combatants in crowded urban settings; systems to detect contraband material and equipment; capabilities to detect snipers and rocket propelled grenade (RPG) gunners before firing; systems that synthesize data from multiple sensors to predict threats and determine intent and other high-persistence methods of maintaining situational awareness and time-critical response in urban environments. Information processing technologies supporting and enhancing RSTA systems for warfare in the urban environment are also of interest. Proposed approaches should have high confidence and low latency to support collaborative Command, Control, & Intelligence (C2I).

**1.1-3. Weapons for Urban Operations:** This area seeks to develop on-demand, infantry-operated, ultra-precision, beyond-line-of-sight, lethal and non-lethal weaponry that has high maneuverability for use in the congested, three dimensional urban environments and technologies that support these goals such as; low cost laser designators, low-cost military grade encryption techniques, autonomous target recognition and classification (particularly for asymmetric threats), etc. The desired maneuvering capability should be consistent with narrow and congested urban environments. Tradeoffs between speed, range and maneuverability are anticipated with interest in speeds as low as 10 to 50 m/s. These fires may have loitering capability. The systems should be soldier launched and should be networked to RSTA systems. Potency may be variable from lethal to non-lethal, with the ability to predict collateral damage so that “blue-safe” regions can be maintained. Reduced spherical error probability (SEP) on the order of one (1) meter is necessary with SEPs reaching centimeter scale being an objective.

**1.1-4. Urban Access with Minimal Infrastructure Disruption:** This area seeks technologies that enhance urban mobility including: novel communications for individual soldiers, weapons particularly suited to the urban environment, vertical mobility for infantry; enhanced mobility for force and logistics transport through a city; and novel systems for urban movement. Technologies that enhance the survivability for air and ground assets are needed; for example that provide effective defense against such threats as improvised explosive devices (IEDs), MANPADS, RPGs and small arms. The ability to negate urban obstacles and move with a minimum signature, at a speed faster than the adversary, is desired. Vertical mobility (e.g. shifting the force-on-force ground battle and its combat support functions to the third dimension, above the city) is sought to enable new tactics, techniques and procedures, countering asymmetric advantages of an enemy force embedded in the urban environment. Manned and unmanned vehicles that enable such transport with machine-enhanced navigational aids or autonomic guidance are desired.

**1.1-5. Asymmetric Warfare Countermeasures:** This area seeks to prevent successful attacks on troops by combatants employing guerrilla tactics, suicide fighters, or remotely-activated IEDs. Tools to detect and destroy IEDs, prevent attack, mitigate damage, and provide effective response mechanisms are desired. Non-lethal responses / non-lethal weapons are also of interest, especially for use in the areas of crowd control or to engage enemy forces commingled with civilians.

**1.1-6. Pre- and Post-Conflict Capabilities:** This area seeks to provide anticipatory capabilities that model and understand social indicators that precipitate hostility and conflict (see item 10 as well) and to develop and assess mitigating and shaping options to stabilize an urban area. Analysis functions that can interpret effects of military and civil operation on the hostility of the population are desired. In addition, force multiplier technologies are sought that augment the size, mobility and capability of limited number of forces in the region and create the perception of a larger military presence critical for security.

**1.1-7. Rapid Stabilization, Pacification and Law Enforcement Tools:** This area seeks technologies and systems to provide omnipresent infrastructure protection and/or restoration; enhance DOD information dissemination; provide weapons stores detection; remotely identify and track individuals within the combat zone; and improve the technologies available to perform DOD civil affairs functions (e.g. medical, law enforcement, etc.). Technologies supporting these goals such as efficient urban-soldier transport systems, methods for tracking, localization and identification of friendly vehicles and personnel are also of interest. Approaches should reflect DOD experience in Somalia, Bosnia, Afghanistan, and Iraq.

**1.1-8. Command, Control, and Intelligence (C2I) for Urban Warfighting:** This area seeks new approaches to collaborative and all-echelon C2I, along with automated intelligence analytical tools, needed to support urban operations. Systems that can rapidly develop high-fidelity urban terrain maps with automated functionality and which can exhibit learning and tracking of past events are of interest. The goal is to create a collaborative environment that allows warfighters to see, understand, and interact with the urban battlespace in “real time”. The urban approach requires tactical data at the level of the individual soldier that may be fed from local or remote networked sensors as well as new approaches for developing and predicting the effect of psychological operations. The C2I systems need to integrate unmanned capabilities with manned systems and provide support to the lowest level warfighter to include fire coordination for squad level indirect fire weapons. Where practical, the system should integrate with C2I systems for traditional warfare.

**1.1-9. Logistics & Support:** This area seeks to develop technologies that significantly reduce overhead required to support and train soldiers in urban combat. This includes both on-demand delivery as well as technologies that significantly reduce the logistics burden of operational necessities (food, water, power, medical, etc.). For example, delivery of communications nodes and supplies from the air can reduce/remove ground lines of control and shorten response times. Innovative approaches to training soldiers for operations in the urban environment can also increase effectiveness, thereby reducing the number of personnel involved in urban operations. On demand resupply (less than 1 hour for units of operation and within minutes for individual warfighters), with precision (less than 1 meter SEP) delivery by air of tailorable packages (100 pounds to 30,000 pounds), is highly desired. Consideration should be given to transportation impact G-loads. Cost-effective approaches to precision air delivery are sought. Reduction in the number of personnel involved in logistics support is an objective.

**1.1-10. Modeling and Simulation:** This area seeks to provide model and simulation based training through the use of realistic models and simulation tools that are based on current

knowledge of the terrain and environment down to the level of individual buildings. A further goal is to prepare warfighters for managing stability operations and enhance their sensitivity to local non-combatants through the use of large, multi-player games tailored to the region of interest's culture that can educate about governance, economic development, government services, etc. Proposers should focus on the development of complete systems and/or subsystems that allow new/novel urban warfare tactics/strategies to be applied.

**1.1-11. Enabling Component Technology:** While the focus of this solicitation is on early system demonstrations, proposed efforts may address development of enabling components that support new system concepts. Proposals for novel component or subsystems need not be composed entirely of newly developed components, but may integrate new technology into existing systems and/or subsystems. Component efforts must clearly describe how they would enable new concepts for warfare in the urban environment and present a transition plan for insertion into a future system demonstration.

Proposed efforts should constitute at least two phases. The first phase of six to twelve months duration should seek to establish the technical feasibility of the concept. Phases beyond the first should be proposed as options leading toward technology development.

## **1.2. APPROACH**

This BAA affords proposers the choice of submitting proposals for the award of a Grant, Cooperative Agreement, Contract, Technology Investment Agreement, Other Transaction for Prototype Agreement, or such other appropriate award instrument. The type of procurement or assistance vehicle is subject to negotiations.

## **1.3. PROPOSERS**

The Government encourages proposals from non-traditional defense contractors, nonprofit organizations, educational institutions, small businesses, small disadvantaged business concerns, Historically-Black Colleges and Universities (HBCU), Minority Institutions (MI), large businesses and Government laboratories. Teaming arrangements between and among these groups are encouraged. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of research in the technologies sought. Government/National laboratory proposals may be subject to applicable direct competition limitations, though certain Federally Funded Research and Development Centers are excepted per P.L. 103-337 § 217 and P.L 05-261 § 3136. Any responsible and otherwise qualified proposer is encouraged to respond.

## **1.4. PROGRAM SCOPE AND FUNDING**

Multiple Phase I awards in the range of \$50,000 to \$400,000 are anticipated. The Government reserves the right to select all, some, or none of the proposals received in response to this solicitation, fund portions of proposals if warranted and make award without discussions. Final funding determination will be based on the combination of proposed concepts and approaches that will reasonably support program success. For Government programmatic flexibility, all offerors should segment their cost proposals as follows: an initial 12-month or shorter study effort to explore and validate the proposed concept and approach, followed by one or more

optional efforts. The total effort including options should not exceed four years. The government retains the option to provide additional funding to some, all, or none of the proposed concepts beyond the first phase.

### **1.5. PERIOD OF PERFORMANCE**

Any effort proposed under this BAA shall not exceed five (5) years. This includes base effort and all potential options.

The Government may incrementally fund any awards under this BAA.

### **1.6. TECHNICAL AND ADMINISTRATIVE SUPPORT**

It is the intent to use contractor support personnel in the administration of all submittals to this BAA. The Government intends to use non-government employees and subcontractors to assist in administration and, if needed, provide technical expertise on portions of the proposals. These personnel will have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, a proposer agrees that its proposal information may be disclosed to employees of these organizations for the limited purpose stated above. If you do not send notice of objection to this arrangement, the Government will assume you consent to use the subject personnel in review of your submittal(s) under this BAA. Only Government evaluators will make technical evaluations and award determinations under this BAA.

### **1.7. INSTRUCTIONS AND POINTS OF CONTACT**

Technical questions pertaining to this BAA may be submitted to DARPA at the following e-mail address: [BAA04-31@darpa.mil](mailto:BAA04-31@darpa.mil). DARPA may post updates to questions or comments periodically to the solicitation website: <http://www.fedbizopps.gov> and <http://www.fedgrants.gov>.

For Contractual questions, please contact the following:

DARPA/CMO

Algeria Tate, Contracting Officer

3701 North Fairfax Drive

Arlington, VA 22203-1714

Email: [atate@darpa.mil](mailto:atate@darpa.mil)

## **2. OVERVIEW OF FORCE MULTIPLIERS FOR URBAN AREA OPERATIONS**

The Defense Advanced Research Projects Agency (DARPA) is soliciting proposals for advanced research and development of technologies that provide revolutionary improvements to warfighting in the urban environment.

The goal is to support DARPA's Strategic Thrust for Force Multipliers for Urban Area Operations by providing technical and operational options that make the planning and execution of urban operations as responsive, flexible, and successful as other aspects of U.S. warfighting. Solutions may apply to operations both before and after the cessation of large-scale hostilities. Of particular interest are solutions that address the very different challenges presented by WUE and dramatically enhance war fighter capabilities; for example, the ability to sense, maneuver



and operate in three dimensions. These changes should generally result in lower casualties, lower collateral damage, and higher mission effectiveness with smaller applied force.

In order to achieve the capabilities described above, the Force Multipliers for Urban Area Operations program will pursue the design, development, integration, and demonstration of critical and enabling technologies and system attributes pertaining to operational Force Multipliers for Urban Area Operations. Offerors should emphasize radical concepts that may contain high technical risk, but if enabled would have commensurate high military payoff. The Government is *not* interested in extensions to existing DARPA programs or minor improvements to operational capability. Rather, DARPA is seeking concepts that will provide either an entirely new military capability or will enhance existing capability by orders of magnitude (based on demonstrable relevant metrics).

Offerors should initially be prepared to support the technical feasibility of their concept or idea, and then be prepared to demonstrate and discuss successive phases leading toward technology development. As such, offerors successfully concluding the White Paper described herein should be prepared to propose a base effort supporting the technical feasibility of their concept or idea, and to propose pre-priced options or subsequent phases that further lead toward technology development. It is envisioned that the base effort proposed will not exceed 12 months, and each successive phase or option proposed will not exceed 12 months. Offerors should not propose total efforts exceeding 60 months. Any such proposal doing so may be disregarded. Multiple awards are anticipated.

### **3. GENERAL INFORMATION**

#### **3.1. ELIGIBILITY**

This BAA solicits proposals from all interested and qualified sources. Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Laws, and other governing statutes applicable under the circumstances.

#### **3.2. LIMITATIONS ON OTHER TRANSACTION FOR PROTOTYPE PROJECTS**

Proposers are advised that an Other Transaction for Prototype Agreement will only be awarded if there is:

1. At least one nontraditional defense contractor participating to a significant extent in the prototype project, or
2. No nontraditional defense contractor is participating to a significant extent in the prototype project, but at least one of the following circumstances exists:
  - a. At least one third of the total cost of the prototype project is to be paid out of funds provided by the parties to the transaction other than the federal Government. The cost share should generally consist of labor, materials, equipment, and facilities costs (including allocable indirect costs).
  - b. Exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a procurement contract.

Although use of one of these options is required to use an Other Transaction for Prototype agreement as the procurement vehicle, no single option is encouraged or desired over the others.



NOTE: For purposes of determining whether or not a participant may be classified as a nontraditional defense contractor and whether or not such participant is determined to be participating to a significant extent in the prototype project, the following definitions are applicable:

“Nontraditional defense contractor” means a business unit that has not, for a period of at least one year prior to the date of the OT agreement, entered into or performed on:

- a. any contract that is subject to full coverage under the cost accounting standards prescribed pursuant to section 26 of the Office of Federal Procurement Policy Act (41 U.S.C. 422) and the regulations implementing such section; or
- b. any other contract in excess of \$500,000 to carry out prototype projects or to perform basic, applied, or advanced research projects for a Federal agency that is subject to the Federal Acquisition Regulation

“Participating to a significant extent in the prototype project” means that the nontraditional defense contractor is supplying a new key technology or product, is accomplishing a significant amount of the effort wherein the role played is more than a nominal or token role in the research effort, or in some other way plays a significant part in causing a material reduction in the cost or schedule of the effort or an increase in performance of the prototype in question.

NOTE: Proposers are cautioned that if they are classified as a traditional defense contractor, and propose the use of an OT for Prototype Agreement, the government will require submittal of both a cost proposal under the guidelines of the FAR/DFARS, and a cost proposal under the proposed OT for Prototype Agreement, so that an evaluation may be made with respect to the cost tradeoffs applicable under both situations. The government reserves the right to negotiate either a FAR based procurement contract, or Other Transaction for Prototype Agreement as it deems is warranted under the circumstances.

### **3.3. PROCUREMENT INTEGRITY, STANDARDS OF CONDUCT, ETHICAL CONSIDERATIONS**

Certain post-employment restrictions on former federal officers and employees may exist, including special Government employees (Section 207 of Title 18, United States Code). If a prospective proposer believes that a conflict of interest exists, the situation should be raised to the DARPA Contracting Officer specified in Section 1.7 before time and effort are expended in preparing a proposal. All proposers and proposed sub-contractors must therefore affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the proposer supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5.) must be disclosed. The disclosure shall include a description of the action the proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict.

### 3.4. INTELLECTUAL PROPERTY

#### 3.4.1. Noncommercial Items: (Technical Data and Computer Software)

Proposers responding to this BAA shall identify all noncommercial technical data, and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has “government purposes rights” for a period of five (5) years from the date of award, to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless otherwise agreed to by the parties. Additionally it is understood that such rights will convert automatically to “unlimited rights” after such five (5) year period, notwithstanding any period of performance extensions that may result after the award instrument is executed, unless otherwise agreed to by the parties. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

A sample list for complying with this request is as follows:

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

#### 3.4.2 Commercial Items: (Technical Data and Computer Software)

Proposers responding to this BAA shall identify all commercial technical data, and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

A sample list for complying with this request is as follows:

COMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

### **3.5. SUBCONTRACTING**

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan IAW FAR 19.702(a) (1) and should do so with their proposal. The plan format is outlined in FAR 19.704.

## **4. PROPOSAL PREPARATION**

### **4.1. GENERAL GUIDANCE**

This Section describes the Government's recommendations for the generation of proposals that are designed to reduce the administrative burden on proposers, and mitigate unnecessary costs associated with the generation of proposals that are not of interest to DARPA. Any responsible offeror is encouraged to respond. DARPA will endeavor to respond to all submissions in an expeditious and timely manner.

#### **4.1.1. Restrictive Markings on Proposals**

All proposals should clearly indicate limitations on the disclosure of their contents. Further, proposers should mark the specific information that requires limited disclosure, vice marking the entire document for limited disclosures. Those sections should be marked as "Proprietary" or words to that effect. Markings like "Company Confidential" or other phrases that may be confused with national security classifications shall be avoided. Typical phrases used to indicate the proprietary nature of submitted documentation includes the following: "SOURCE SELECTION INFORMATION – See FAR 3.104".

#### **4.1.2. Confidentiality**

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. The original of each proposal received will be retained at DARPA and all other copies of non-accepted proposals destroyed.

#### **4.1.3. Submission Timelines**

This BAA solicits both white papers and proposals. The purpose of a white paper is for the offeror to solicit early feedback as to whether the research proposed will be of interest to DARPA. It is thus in the submitter's best interest to articulate clearly the innovative concept and the technology development proposed. The submission of a white paper is optional but strongly encouraged and will not result in a funding decision by DARPA. However, it can be used by the offeror to avoid the expense of proposal generation for ideas that have little likelihood of selection within this BAA. DARPA will endeavor to respond to each white paper within thirty (30) days after its receipt with a recommendation on the likelihood of selection. Regardless of the DARPA recommendation based on its review of the white paper, an offeror may submit a

proposal and that proposal will be reviewed and evaluated. Only proposals submitted to this BAA will be considered for funding.

DARPA will conduct an initial round of proposal receipt, evaluation, selection, and award. For the initial round of source selection, white papers should be submitted electronically to DARPA via <http://www.tfims.darpa.mil/baa> not later than 1600 local time, 28 July 2004. In order to be considered for an award during this first round, proposals must be received by DARPA on or before 1600 local time, 6 October 2004. Proposals received after that date will be reviewed and evaluated in a timely fashion. White papers received after 1600 local time, 3 May 2005 will not be evaluated.

The BAA will remain open for proposals through 1600 local time on 17 June 2005. Proposals received after the closing date of this BAA will not be reviewed or evaluated. As soon as the evaluation of a proposal is completed, the offeror will be notified that 1) the proposal has been selected and the program will be funded, or 2) the proposal has not been selected. Non-selected proposals will be destroyed; however, one copy of non-selected proposals may be retained for file purposes.

All submissions under this BAA must be submitted electronically in either PDF or Microsoft Word format via <http://www.tfims.darpa.mil/baa>.

#### **4.1.4. General Formatting Characteristics**

Consistent with requirements for paper document submission, all electronic submissions must be in the following format—nonconforming proposals may be rejected without further review. Proposals must be on single-sided pages, written in English, with fonts no smaller than 12 point and with 1-inch margins (left, right, top, and bottom) in each page. All pages should be able to be printed on normal-weight paper with type not smaller than 12 point. A page is defined as being no larger than 8.5" by 11.0". Electronic copies should be in PDF (preferred) or Microsoft Word format and submitted via <http://www.tfims.darpa.mil/baa>. Submission deadlines apply to electronic versions.

## **4.2. SUBMISSION ORDER AND GUIDELINES**

### **4.2.1. White Paper and Discussion with a DARPA PM**

The purpose of the White Paper is to permit the submitter to present a more detailed explanation of the idea/concept, its technical merit and military relevance. Offerors will be able to further discuss the technical merits of their concept with a DARPA Program Manager. The submitter should articulate the innovative concept and technology development needed with respect to demonstrable metrics. The submission of the White Paper should be used by the offeror to avoid unnecessary expense in proposal generation for ideas that may not be selected within this BAA. Offerors should explain in the White Paper the feasibility of idea/concept transition to the military, other government agencies or organizations, or other interested users, as applicable. Additionally, offerors should clearly specify the intended demonstrable improvements over current systems, explain transition paths, specify tentative schedules, and provide a rough estimate of cost. DARPA will endeavor to respond to White Papers in an expeditious and timely manner.

If DARPA does not have any interest in your White Paper you will be notified by a formal letter. If DARPA is interested in your White Paper, you will be encouraged by a formal letter to submit a full proposal. Offerors should then expect to proceed to the second step—submitting a full proposal (See paragraph 4.2.2.)

#### **4.2.2. Full Proposal**

A typical proposal should express a consolidated effort in support of the ideas and/or concepts discussed in the White Paper. Disjointed efforts or approaches should not be included in a single proposal. For purposes of this BAA, a “proposal” is the two-volume document that conforms to the form and format requirements specified herein. Other supporting or background materials submitted with proposals or other such extraneous materials will not be considered part of a proposal for the purpose of a proposal’s evaluation. Any total effort, including options, shall not exceed five (5) years. Teaming and cost sharing are acceptable to the extent that they are meaningful and beneficial to the Government but are not required.

### **4.3. FORMAT SPECIFICS**

#### **4.3.1. White Paper Format**

White Papers: White papers are to be limited to 15 pages and should identify the specific area addressed, provide a description of the problem(s) that will be solved, a description of the proposed solution, any existing evidence that the proposed solution(s) will be successful, and the relative impact of such a solution(s), should it or they prove successful.

No facsimile submissions will be accepted. One (1) electronic copy of the white paper will be submitted to DARPA via <http://www.tfims.darpa.mil/baa>.

The White Paper should have a cover sheet (not included in the fifteen page limit) with the following information:

1. BAA number (**BAA04-31**)
2. Technical area (see Paragraph 1.1)
3. Lead Organization Submitting proposal
4. Type of business, selected among the following categories: "LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," or "OTHER NONPROFIT"
5. Contractor’s taxpayer identification number
6. Other team members (if applicable) and type of business for each
7. White Paper title
8. Technical point of contact to include: salutation, last name, first name, valid organizational mailing address, telephone, fax, electronic mail
9. Administrative point of contact to include: salutation, last name, first name, valid organizational mailing address, telephone, fax, electronic mail
10. Funds requested from DARPA for each phase proposed and the total proposed cost; and the amount of cost share (if any)
11. Date White Paper was prepared.

The White Paper should also include a one slide summary in PowerPoint that quickly and succinctly indicates the main objective, key innovations, expected impact, and other unique aspects (included in the 15 page limit).

#### 4.3.2. Full Proposal Format

Proposals shall consist of two volumes. Volume I, Technical and Management Proposal, consists of three sections: 1) Administrative, 2) Detailed Proposal, and 3) Additional Information. Volume I (including sections 1 and 2 only) shall not exceed 50 pages. Section 3, Additional Information, may contain a bibliography and up to three (3) relevant papers or research notes (published and unpublished), which document the technical ideas and approach upon which the proposal is based. Section 3 is not included in the 50-page limitation. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review.

The page limitation for proposals includes all figures, tables (except the table of contents), and charts. Restrictions on the page length of any specific section are shown in braces { } below. All pages that exceed the maximum page limit specified may be removed and not be reviewed or considered in evaluation.

Only electronic submissions will be accepted. One (1) electronic copy of the full proposal will be submitted to DARPA via <http://www.tfims.darpa.mil/baa>.

##### 4.3.2.1. Volume I, Technical and Management Proposal

###### Section 1) Administrative:

1. {1} Cover sheet to include:
  - a. BAA number (**BAA04-31**)
  - b. Lead Organization Submitting proposal
  - c. Type of business, selected among the following categories: "LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," or "OTHER NONPROFIT"
  - d. Contractor's taxpayer identification number)
  - e. Other team members (if applicable) and type of business for each
  - f. Proposal title
  - g. Technical Topic Area
  - h. Technical point of contact to include: salutation, last name, first name valid organizational mailing address, telephone, fax, electronic mail
  - i. Administrative point of contact to include: salutation, last name, first name, valid organizational mailing address, telephone, fax, electronic mail
  - j. Funds requested from DARPA for the Base Effort, each option and the total proposed cost; and the amount of cost share (if any)
  - k. Date proposal was prepared.
2. {1} Official transmittal letter.
3. {No page limit} Table of Contents. The Table of Contents should be keyed to the page numbers of the proposal sections.



4. {1} A one slide summary of the proposal in PowerPoint that quickly and succinctly indicates the main objective, key innovations, expected impact, and other unique aspects of the proposal.

#### Section 2) Detailed Proposal Information:

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA. NOTE: any classified annex will be considered part of this section, and included in the maximum page count.

1. {1} Executive Summary of the proposal: This section should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-art and alternate approaches. Define the problem/challenge that this innovative claim will address and the effort's technical goals. Explain how this proposal addresses this problem differently than current approaches and the significant gains due to its uniqueness.
2. {3} Innovative claims for the proposed research. This section is the centerpiece of the proposal. It should succinctly describe the uniqueness and benefits of the proposed approach relative to current state-of-the-art and alternate approaches.
3. {3} Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization will clearly address how the proposed effort will meet the goals of the program. Include in this section all proprietary claims to results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. (SEE SECTION 3.4, INTELLECTUAL PROPERTY.) If there are no proprietary claims, this should be stated. NOTE: For purposes of completing section 3.4, Intellectual Property, this information will not be counted in the proposers page count.
4. {3} Statement of Work (SOW) written in plain English, outlining the scope of the effort and citing specific tasks to be performed and specific contractor requirements.
5. {3} Cost, schedule and milestones for the proposed research, including estimates of cost for each task in each year of the effort, for each phase, and total cost and company cost share, if applicable.
6. {21} Detailed technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. Includes a thorough quantitative discussion of relevant technical information and a detailed plan. This section should clearly explain: What you are proposing (and how it works); why you are proposing this approach; why you believe it can be done now; and the importance or effect if successful (who will care and why).
7. {5} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
8. {3} Discussion of proposer's previous accomplishments and work in this or closely related research areas.
9. {2} Description of the facilities that would be used for the proposed effort. If conducted with operational forces, what agreements/coordination has been made or will be required to meet this requirement.



10. {3} Formal teaming agreements that are required to execute this program and a brief synopsis of all key personnel. A clearly defined organization chart for the program team that includes, as applicable the:
  - a. programmatic relationship of team members;
  - b. unique capabilities of team members;
  - c. task responsibilities of team members;
  - d. teaming strategy among the team members; and
  - e. key personnel along with the amount of effort to be expended by each person during each year.

Section 3) Additional Information:

A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission. These papers are not included in the fifty (50) page limit.

4.3.2.2. Volume II, Cost Proposal – {No page limit}

1. A cover sheet to include:
  - a. Name and address of proposer (include zip code);
  - b. Name, title, and telephone number of Proposer's point of contact;
  - c. Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract--no fee, cost sharing contract--no fee, or other type of procurement contract (specify), grant, agreement, or other award instrument;
  - d. Place(s) and period(s) of performance;
  - e. Funds requested from DARPA for the Base Effort, each option and the total proposed cost; and the amount of cost share (if any);
  - f. Name, mailing address, telephone number and Point of Contact of the proposers cognizant government administration office(i.e., Office of Naval Research/Defense Contract Management Agency (DCMA)) (if known);
  - g. Name, mailing address, telephone number, and Point of Contact of the Proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
  - h. Any Forward Pricing Rate Agreement, other such Approved Rate Information, or such other documentation that may assist in expediting negotiations (if available);
  - i. Contractor and Government Entity (CAGE) Code,
  - j. Dun and Bradstreet (DUN) Number;
  - k. North American Industrial Classification System (NAICS) Number [NOTE: This was formerly the Standard Industrial Classification (SIC) Number]; and,
  - l. Taxpayer Identification Number (TIN).
  - m. All subcontractor proposal backup documentation to include items a. through l. above, as is applicable and available).
2. Detailed cost breakdown to include:
  - a. Total program cost broken down by government fiscal year (GFY) [Note: Government Fiscal Year runs from October 1<sup>st</sup> to September 30<sup>th</sup>] and Base

- and Options; further broken down by major cost items (direct labor, subcontracts, materials, travel, other direct costs, overhead charges, etc.). See table below for an example format;
- b. Costs of major program tasks by year and month; More descriptive or example
  - c. An itemization of major subcontracts (labor, travel, materials and other direct costs) and equipment purchases;
  - d. A summary of projected funding requirements by month; and
  - e. The source, nature, and amount of any industry cost sharing, if applicable. Where the effort consists of multiple phases that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each.
3. Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates above. Include a description of the method used to estimate costs and supporting documentation. Provide the basis of estimate for all proposed labor rates, indirect costs, overhead costs, other direct costs and materials, as applicable.

**EXAMPLE**

	GFY 04													GFY 05												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
BASE																										
OPTION 1																										
OPTION 2																										
Total																										

	GFY 04													GFY 05												
BASE	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
Direct Labor - Dollars																										
Direct Labor - Hours																										
Travel																										
Equipment																										
Subcontractors																										
Other ODCs																										
Overhead																										
G&A																										
Fee/Profit																										
Total																										

**EXAMPLE**

	GFY 04													GFY 05												
<b>OPTION 1</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
Direct Labor - Dollars																										
Direct Labor - Hours																										
Travel																										
Equipment																										
Subcontractors																										
Other ODCs																										
Overhead																										
G&A																										
Fee/Profit																										
<b>Total</b>																										

	GFY 04													GFY 05												
<b>OPTION 2</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
Direct Labor - Dollars																										
Direct Labor - Hours																										
Travel																										
Equipment																										
Subcontractors																										
Other ODCs																										
Overhead																										
G&A																										
Fee/Profit																										
<b>Total</b>																										

## **5. PROPOSAL EVALUATION**

Evaluation of proposals will be based on the innovative technical approach and operational perspective with a focus on approaches that exploit novel technologies and new operational concepts. The criteria to be used to evaluate and select proposals for this project are described in the following paragraphs. Each proposal will be evaluated on the merit and relevance of the specific proposal as it relates to the program rather than against other proposals for research in the same general area, since no common work statement exists. In descending order of relative importance, the proposal Evaluation Criteria includes: (1) Overall engineering and technical merit including degree of innovation, understanding of the technical and operational issues, and experimental approach. (2) Potential contribution and relevance to DoD urban warfighting missions. (3) Offeror's capabilities and related experience, including qualifications and achievements of all team members and their key personnel, their capability to carry out further development and production, and the adequacy of facilities and equipment to be used for the proposed effort. (4) Project plan to carry out the work and the plan to accomplish technology transition to use by the military services. (5) Cost realism. In accordance with FAR 35.016(e) the primary basis for selecting proposals for award shall be technical, importance to agency programs, and funds availability. Cost realism and reasonableness shall also be considered to the extent appropriate as described herein. Proposals may be evaluated as they are received, or they may be collected and periodically reviewed. The following are descriptions of the above listed criteria:

### **5.1 TECHNICAL APPROACH**

The technical approach of the proposer should address every aspect of the effort. In particular, the following items will be considered and evaluated:

- Innovation and Realism
- Understanding of the Problem
- Scalability

### **5.2 POTENTIAL CONTRIBUTION AND RELEVANCE TO THE DARPA FORCE MULTIPLIERS FOR URBAN AREA OPERATIONS MISSION**

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated.

### **5.3 OFFEROR'S CAPABILITIES AND RELATED EXPERIENCE**

The qualifications of the Principal Investigators will be considered. The range, depth, and mix of expertise of the Offeror's key personnel will be evaluated to ensure that they are qualified in the theory and application of the technologies involved in the research, development, testing and evaluation of the proposed technology.

### **5.4 APPROACH/ABILITY TO TECHNOLOGY TRANSITION**

The capability to transition the technology to the research, industrial, and operational military communities in such a way as to enhance U.S. defense.

## 5.5 COST REALISM

The objective of this criterion is to establish that the proposed costs are reasonable and realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. This will be principally measured by cost per labor-hour and number of labor-hours proposed. The evaluation criterion recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION SCORES MAY BE LOWERED AND/OR PROPOSALS REJECTED SHOULD SUBMITTAL INSTRUCTIONS NOT BE FOLLOWED

## 6. SECURITY INFORMATION

NOTE: The Government anticipates that submissions under this BAA will be unclassified. In the event that a proposer chooses to submit a classified proposal or submit any documentation that may be classified, the following information is applicable.

Security classification guidance on a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. If you choose to submit a classified proposal you must first receive permission of the Original Classification Authority (OCA) to use their information in replying to this BAA and submit the applicable OCA classification guide(s) to ensure that the proposal is protected appropriately.

Classified submissions shall be in accordance with the following guidance:

Collateral Classified Data: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another original classification authority. Classified information at the Confidential and Secret level may only be mailed via U.S. Postal Service (USPS) Registered Mail or U.S. Postal Service Express Mail (USPS only; not DHL, UPS or FedEx). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency (DARPA)  
ATTN: **BAA04-31**, DARPA/DIRO  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency (DARPA)

Security & Intelligence Directorate, Attn: CDR  
3701 North Fairfax Drive, Suite 832  
Arlington, VA 22203-1714

All Top Secret materials should be hand carried via an authorized, two-person courier team to the DARPA CDR.

Special Access Program (SAP) Information: Contact the DARPA Program Security Support Center (PSSC) at 703-812-1962/1970 for further guidance and instructions prior to transmitting to DARPA. All Top Secret SAP, must be transmitted via approved methods for such material. Consult the DoD Overprint to the National Industrial Security Program Operating Manual for further guidance. It is strongly recommended that you coordinate the transmission of SAP material and information with the DARPA PSSC prior to transmission.

Sensitive Compartmented Information (SCI) Data: Contact the DARPA Special Security Contact Office (SSCO) at 703-812-1993/1994 for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO) / Special Security Contact Officer (SSCO). All SCI data must be transmitted through your servicing Special Security Officer (SSO) / Special Security Contact Officer (SSCO). All SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI facility via secure fax).

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as such. Further, the pages should be portion marked, specifically identifying which material is proprietary. It is the Proposer's responsibility to define clearly to the Government what is considered proprietary data.

Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose.